THE TAYLOR

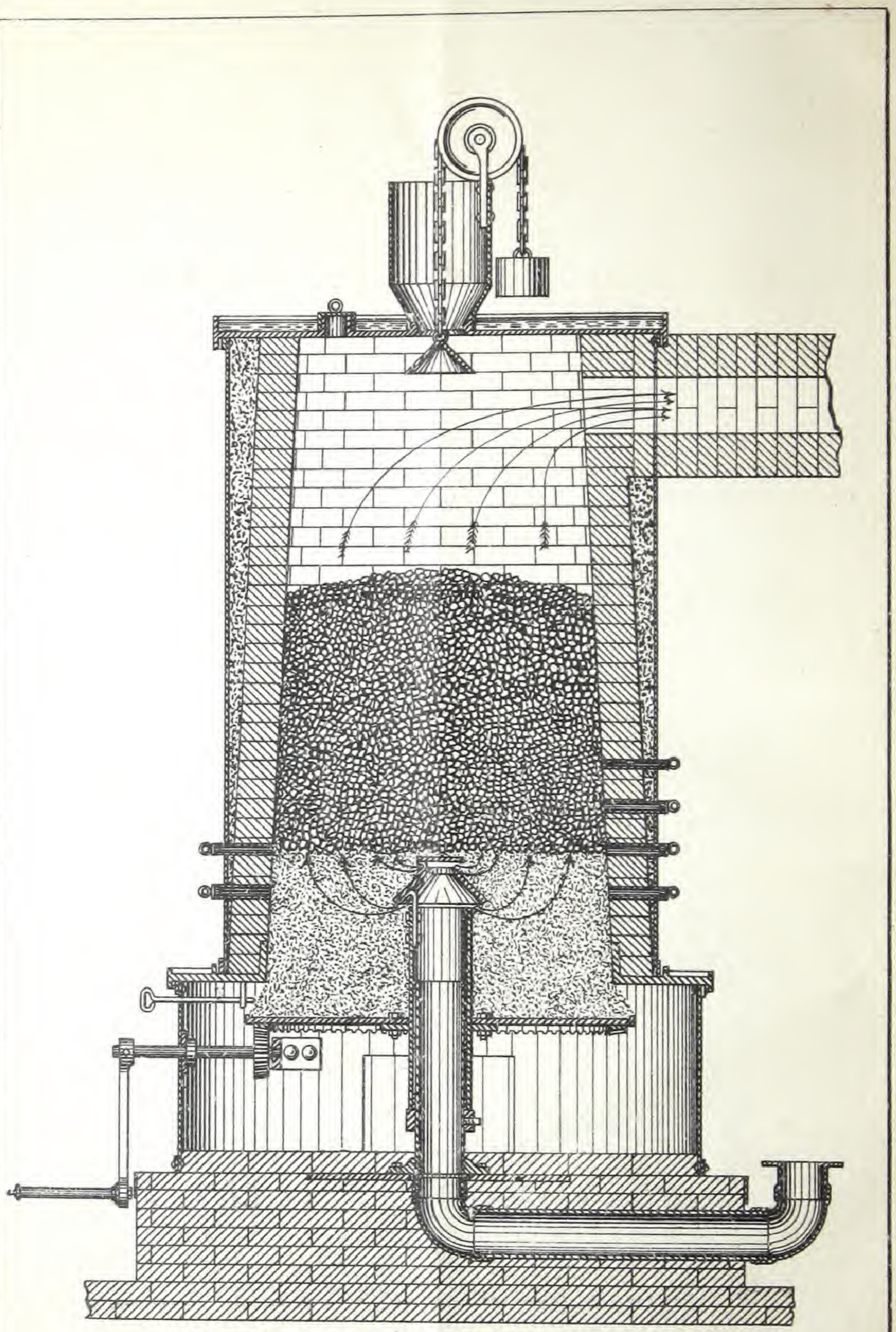
REVOLVING BOTTOM GAS PRODUCER

FOR MAKING

Producer Gas,

Fuel Gas,

Water Gas.



The Taylor Revolving-Bottom Gas-Producer.

Brick-Lined.

Pat. appl'd. for.

The Taylor

Revolving Bottom Gas Producer.

A Gas Producer is about the simplest of all metallurgical furnaces—in fact almost anything capable of containing a heavy bed of coal, under which a blast of air and steam can be forced, is a good gas producer for a short time—but all those having practical experience in making either producer gas or water gas, from either Bituminous or Anthracite, know well the difficulties of getting rid of the non-combustible—ash and clinker—in the coal, without great waste, labor and loss of time, aside from making much poor gas.

After contending against this difficulty in making Producer gas continuously from Anthracite Buckwheat coal for some twelve years, I designed a solid revolving bottom for discharging ash and clinker over its periphery into the ash-pit beneath, which has been working successfully for the past year.

The accompanying cuts illustrate the Producer in operation, showing the revolving bottom supporting the bed of ash, on which rests the incandescent fuel. It will be noticed that the revolving bottom is so proportioned diametrally to the bottom of the combustion chamber, and placed at such a distance therefrom, that when it is revolved, the ash which forms its own dome or slope at an angle of about 45°, is discharged uniformly by its own gravitation over the periphery and into the sealed ash-pit below (which is under back pressure), all without stopping the Producer, or interfering with making gas. The grinding is done as fast as the ash raises too far above the central air and steam dis-

charge, say every six to twenty-four hours according to the rate of working. The door of the ash-pit is opened once a day for raveling out the ash and clinker, this requires but a few moments and does not interfere with continuous working.

The conduit for air and steam is also used for the central post or support, on which the bottom revolves, actuated by the crank and pinion. The discharge of air and steam is radially from the centre, in order to prevent too much travel of the gas next the walls, which is the line of least resistance, and is placed at a point sufficiently high to carry a proper bed of ash. The top of the ash-bed should never be brought below the air discharge. Sight or test holes are placed in the walls so that the dividing line between the ash and incandescent coal can be ascertained at all times. Should the ash not grind down as fast on one side as another, agitating bars or scrapers are provided, which may be pushed in on the high side before grinding, which accelerates the discharge on that side and levels up the ash bed.

The particular features and advantages of the Producer may be summarized as follows :—

1.—There is no *grate to waste coal through*, and there is practically no waste in cleaning. In practice I find we gasify the carbon down to less than three-fourths of one per cent. of the original carbon in the coal, as the ash from the Producer contains only five to six per cent. of combustible matter from coal containing, say ten per cent. ash.

2.—Any clinkers that will pass through a 5″ space will be discharged from the Producers I have built, in the regular grinding without any manipulation or waste of fuel, and if this distance (5″ between the revolving bottom and the bottom of the combustion chamber) is found not to be sufficient, when coal is used that clinkers very badly, it may be increased as much as desired, by simply dropping the bottom and enlarging its diameter proportionately.

3.—Cleaning is entirely under control without specially interfering with making gas, hence the Producer is absolutely continuous and at the same time it is just as perfect when used intermittently.

4.—By the introduction of the side test holes the attendant always knows when to grind down his ash and when to stop, and the grinding can be done by power other than manual, if desired.

5.—In grinding down the ash the settling of the fuel is active next to the walls; or it may be said the settling is more from the walls to the centre while the reverse is the case in all other Producers. This is a feature that all experienced in producer practice will appreciate.

6.—It is the simplest and consequently the cheapest in construction of any producer ever built, as well as the most durable.

It will thus be seen that we have here all the conditions of a perfect Gas Producer, for making either Producer, Fuel, or Pure Water Gas, and from either Anthracite or Bituminous coal, even of the most inferior quality, down to slack or culm, the latter, however, must be freed from fine dust.

The cuts illustrate both a brick lined and a water cooled producer, the latter is a step in the direction of a gas producer and boiler combined, and will work more smoothly as there can be no clinkering to the walls, but of course this plan represents much loss of heat, and consequently less dissociation of steam, and unless the heat of the water can be utilized, or the gas used in regenerative furnaces, the usual brick lining will be found preferable in most cases.

The blast is generally furnished by a Korting steam jet blower, giving all the steam in proportion to air that the fuel will take and maintain incandescence.

A gas containing by volume about forty per cent. combustible, *i. e.*, CO. H. and CH_4 can readily be made continuously, but any fuel gas up to a pure water gas can be made intermittently more advantageously and with less waste and lost time than in any other form of producer.

Four feet in diameter at the bottom of the combustion chamber is the largest producer that has been built as yet. This will gasify 3 tons of coal readily in 24 hours, each ton of coal will produce from 140,000 to 150,000 feet of a 40 per cent. combustible gas, containing about 140,000 heat units per 1000 feet.

These Producers can be seen in operation at Chester Furnace, Morris Co., N. J.

For all particulars address the Patentee,

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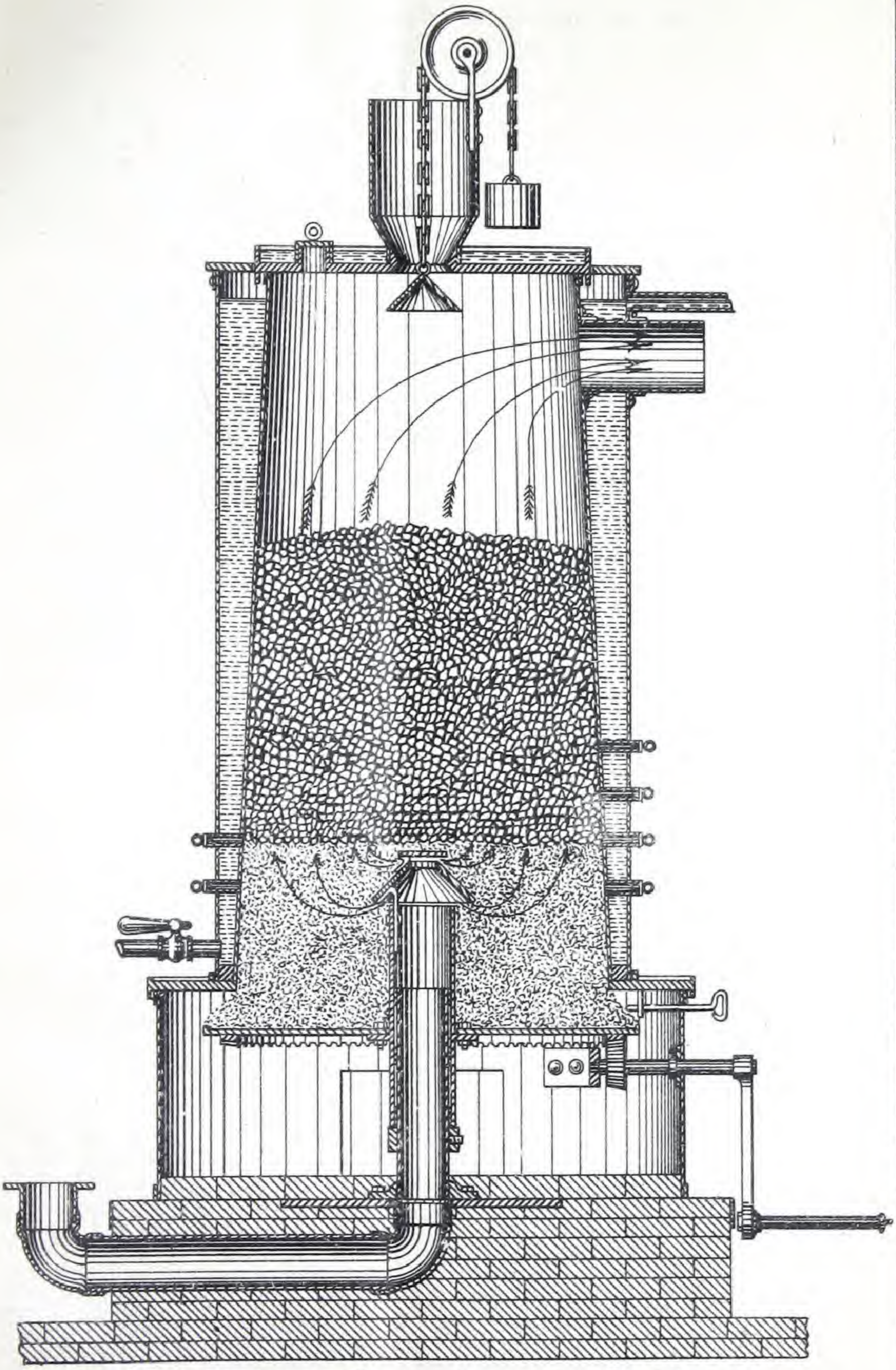

The Taylor Revolving-Bottom Gas-Producer.

Water-Cooled.

Pat. appl'd. for.